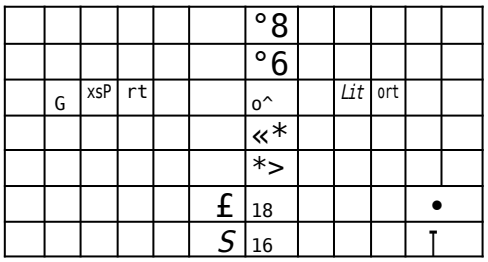
regenerator under pressure from the producer. The gas pressure can be and usually is increased toward the end of a campaign when the regenerators are partially blocked.

The inclination of the ports is fixed when the heads are built. It frequently happens that these heads are changed several times before they work in a satisfactory manner. In fact, a number of furnace drawings which have been published show heads which must have been altered considerably in order to make the bottom.

In the open-hearth furnace the ports are just below the roof,



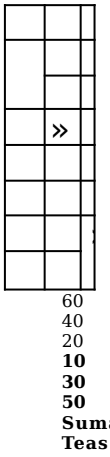


FIG. 143.—Graphical Comparison of the Port Areas of Various Open-hearth Furnaces.

and the hearth forms a pocket below the level of the port and door sills and above the level of the tapping hole. This pocket will become filled with the coolest gases in the heating chamber. In order to sweep these gases out of the pocket and permit the sintering of the bottom of the furnace in place it is necessary to utilize the jet of flame issuing from the ports. This jet must describe a parabola having a middle ordinate equal to the vertical distance from the tapping hole to the port sills. In the earliest types of open-hearth furnace it was endeavored to attain this